

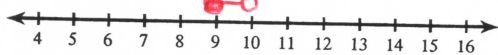
3.6 Compound Inequalities (AND) day 1

© 2013 Kuta Software LLC. All rights reserved.

Date _____ Period _____

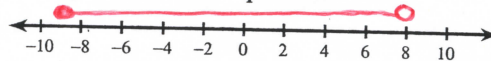
Solve each compound inequality and graph its solution.

1) $a - 9 \geq 0$ and $a + 10 < 20$



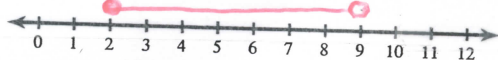
$$\begin{array}{r} a - 9 \geq 0 \\ +9 \quad +9 \\ \hline a \geq 9 \end{array} \quad \text{AND} \quad \begin{array}{r} a + 10 < 20 \\ -10 \quad -10 \\ \hline a < 10 \end{array}$$

2) $-3p > -24$ and $3p \geq -27$



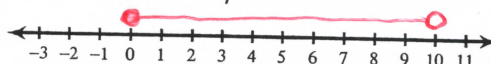
$$\begin{array}{r} -3p > -24 \\ \div -3 \quad \text{FLIP IT} \\ \hline p < 8 \end{array} \quad \text{AND} \quad \begin{array}{r} 3p \geq -27 \\ \div 3 \\ \hline p \geq -9 \end{array}$$

3) $-2 \leq a - 4 < 5$



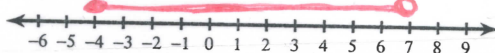
$$\begin{array}{r} -2 \leq a - 4 < 5 \\ +4 \quad +4 \quad +4 \\ \hline 2 \leq a < 9 \end{array}$$

4) $r + 2 < 12$ and $\frac{r}{7} \geq 0$



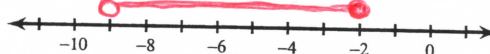
$$\begin{array}{r} r + 2 < 12 \\ -2 \quad -2 \\ \hline r < 10 \end{array} \quad \text{AND} \quad \begin{array}{r} \frac{r}{7} \geq 0 \\ \times 7 \\ \hline r \geq 0 \end{array}$$

5) $-42 < -6k \leq 24$



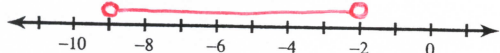
$$\begin{array}{r} -42 < -6k \leq 24 \\ \div -6 \quad \div -6 \quad \div -6 \quad \text{FLIP BOTH!} \\ \hline 7 > k \geq -4 \end{array}$$

6) $-70 < 7x - 7 \leq -21$



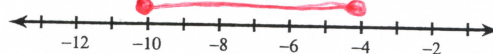
$$\begin{array}{r} -70 < 7x - 7 \leq -21 \\ +7 \quad +7 \quad +7 \\ \hline -63 < 7x \leq -14 \\ \div 7 \\ \hline -9 < x \leq -2 \end{array}$$

7) $-35 < 4x + 1 < -7$



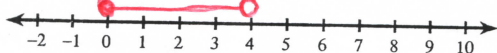
$$\begin{array}{r} -35 < 4x + 1 < -7 \\ -1 \quad -1 \quad -1 \\ \hline -36 < 4x < -8 \\ \div 4 \\ \hline -9 < x < -2 \end{array}$$

8) $10a - 9 \geq -109$ and $6a - 2 \leq -26$



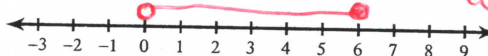
$$\begin{array}{r} 10a - 9 \geq -109 \\ +9 \quad +9 \\ \hline 10a \geq -100 \\ \div 10 \\ \hline a \geq -10 \end{array} \quad \text{AND} \quad \begin{array}{r} 6a - 2 \leq -26 \\ +2 \quad +2 \\ \hline 6a \leq -24 \\ \div 6 \\ \hline a \leq -4 \end{array}$$

9) $-22 < -7a + 6 \leq 6$



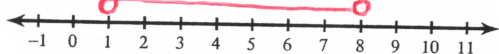
$$\begin{array}{r} -22 < -7a + 6 \leq 6 \\ -6 \quad -6 \quad -6 \quad \text{FLIP BOTH!} \\ \hline -28 < -7a \leq 0 \\ \div -7 \\ \hline 4 > a \geq 0 \end{array}$$

10) $4 < 4 + 5b \leq 34$



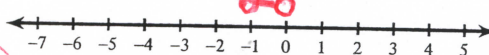
$$\begin{array}{r} 4 < 4 + 5b \leq 34 \\ -4 \quad -4 \quad -4 \\ \hline 0 < 5b \leq 30 \\ \div 5 \\ \hline 0 < b \leq 6 \end{array}$$

11) $9b - 2 > 6b + 1$ and $-4b + 2 < 10 - 5b$



$$\begin{array}{r} 9b - 2 > 6b + 1 \\ -6b \quad -6b \\ \hline 3b - 2 > 1 \\ +2 \quad +2 \\ \hline 3b > 3 \\ \div 3 \\ \hline b > 1 \end{array} \quad \text{AND} \quad \begin{array}{r} -4b + 2 < 10 - 5b \\ +5b \quad +5b \\ \hline b + 2 < 10 \\ -2 \quad -2 \\ \hline b < 8 \end{array}$$

12) $-5b - 2 > -4b - 2$ and $-4b - 2 < 3 + b$



$$\begin{array}{r} -5b - 2 > -4b - 2 \\ +5b \quad +5b \\ \hline -2 > b - 2 \\ +2 \quad +2 \\ \hline 0 > b \end{array} \quad \text{AND} \quad \begin{array}{r} -4b - 2 < 3 + b \\ +4b \quad +4b \\ \hline -2 < 3 + b \\ -3 \quad -3 \\ \hline -5 < b \\ \div -1 \\ \hline -1 < b \end{array}$$